

- 9 -

CLAIMS

1 - Electronically controlled electromechanical valve having at least three ports through which a fluid can flow and at least three different stable positions in which at least 2 ports are in fluid communication, said valve comprising :

- 5 - a stationary outer housing comprising at least three bores;
 - a rotating inner section which rotates about an axis and comprises adequate bores defining with the bores of the housing, the at least three ports of the valve; and
10 - an electrical actuating system being controlled by an electronic controller and being able to switch the valve from one position to another by rotating the inner section about its axis.

2 - Valve according to the preceding claim, characterized in that it comprises an additional closed position, in which none of the above mentioned 3 ports are in fluid communication, and which is held by a suitable default
15 mechanism able to ensure that the system is sealed in the event of electrical power loss.

3 - Valve according to any of the preceding claims, characterized in that the electrical actuating system comprises at least three coils fixed on the outer stationary housing and at least one magnet fixed on the inner rotating section, the
20 coils being coupled to a power generator which is able to energize them, i.e. to generate an electrical current and make it circulate through them, in response to a signal from the electronic controller, so that each position of the valve is associated with a given coil being energized and attracting the magnet to it.

4 - Valve according to any of the preceding claims, characterized in that
25 the electrical actuating system comprises at least two magnets.

5 - Valve according to claim 1 or 2, characterized in that the electrical actuating system comprises a motor placed on top of the valve, which rotates the inner section of the valve and puts it in given positions in response to a signal from the electronic controller.

- 10 -

- 6 - Fuel system vapor management unit for an internal combustion engine, characterized in that it comprises a valve according to any of the preceding claims.
- 5 7 - Unit according to the preceding claim, characterized in that one position of the valve ensures complete flow communication between a fuel tank and a vapor recovery system and the 2 other positions ensure respectively complete and partial communication between this vapor recovery system and the engine.
- 10 8 - Unit according to claim 6 or 7, characterized in that the valve comprises at least an additional port to be connected to a vapor recirculation line extending to the filler pipe.
- 15 9 - Unit according to the preceding claim, characterized in that the valve comprises at least five ports for being connected respectively to the fuel tank, to the canister, to the engine, to a passage of large diameter to the vapor recirculation line and to a passage of small diameter to the (or another) vapor recirculation line.
- 10 - Unit according to the preceding claim, characterized in that it comprises a second port for being connected to the fuel tank.